Memorandum

MIAMI-DADE COUNTY

Date: September 4, 2007

To: Honorable Chairman Bruno A. Barreiro and Members, Board of County Commissioners

Agenda Item No. 12(B)3

From: George M. Burgess, County Manager

Subject: Report on the Use of Non-Domestic Sand Sources for Beach Nourishment

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At the July 11, 2007 meeting, the Budget and Finance Committee approved Resolution 072023, urging the United States Army Corps of Engineers (Corps) to allow the use of non-domestic sand for beach renourishment and urging the United States Congress to appropriate funds for Miami-Dade beach renourishment projects. During the discussion of this item Commissioner Sosa requested information regarding the comparative cost of nourishing Miami-Dade beaches with domestic versus non-domestic sand sources and how those costs would be allocated among the Federal, State, and local interests. This report will provide the requested information and background on the issue.

The Miami-Dade County Department of Environmental Resources Management (DERM) has administered beach erosion control activities throughout the County since the mid-1970's. One of DERM's primary functions has been to act as the local sponsor for the Federal shore protection project administered by the Corps, which extends from Government Cut through Sunny Isles Beach. These areas were originally restored from 1975 through the mid-1980's and have subsequently been renourished since that time on an as-needed basis.

Historically, the sand sources for these projects have been sand deposits located offshore of the Miami-Dade County coast. These deposits are found throughout the County and are generally located between reef ridges that parallel the coast. While a large number of these deposits were identified in advance of construction as part of the project design process, an increase in the number of projects implemented over the past 30 years, together with increasingly stringent environmental constraints restricting the use of some sites, has resulted in the depletion of all but one small source, which is being held as an emergency reserve.

Recognizing this pending sand shortage, the Corps and the County initiated a concerted effort in 1995 to identify potential long-term sand sources to supply material for future nourishment projects. Initially, these efforts focused on sources in nearby areas of the Caribbean, since there are numerous areas with large quantities of high quality sand which would be economically and environmentally viable. However, the use of these non-domestic sources was curtailed due to Congressional language included in the 1986 Water Resources Development Act (WRDA) which stated that non-domestic sand sources can be used only if it can be demonstrated that no suitable domestic sources are available.

In order to either identify potential domestic sand sources or demonstrate that no suitable domestic sources existed, the Corps initiated a stepwise process involving solicitations for domestic sand. In 2003, the Corps solicited bids for inland sand sources. While three bids were received, the logistical complexity of mining inland sand and delivering it to the beach was not cost effective and all three bids were deemed unfeasible.

The next step involved a solicitation for sand from any domestic source (inland or offshore). While any domestic source could be used, the industry focused exclusively on a large sand shoal located approximately five miles offshore of the Martin/ St. Lucie County line. In May 2006, the Corps sponsored a series of public scoping meetings in Miami-Dade, Martin and St. Lucie Counties to obtain public input on the use of the Martin/St. Lucie County sand source for nourishing the Miami-Dade County project. During the Martin and St. Lucie meetings there was extremely strong opposition to the use of that shoal from both the public and elected officials and as a result that source was dropped from consideration. Later that summer, potential sources offshore of Palm Beach County were investigated, but were similarly eliminated due to political opposition and potential long-term sand shortages in that area.

Having investigated all viable domestic sand sources without success, a report was prepared in the Corps Jacksonville District documenting the efforts to identify domestic sources. The report concluded that no domestic sand sources were available and requested relief from the 1986 Congressional language prohibiting the use of non-domestic sand sources. This report is presently undergoing concurrent review at both the division and national headquarters of the Corps. If the report is approved, any sand including non-domestic sources would be available for consideration to supply sand for future nourishment of the Miami-Dade beach project. Although no specific time frame for the completion of this process currently exists, the County has been working closely with its Congressional delegation to urge the Corps to conduct an expedited review and approval of the report.

While no specific costs are available for these non-domestic sand sources, it is certain that future nourishment projects using either domestic or non-domestic sources will be far more costly than in the past. The unit costs for the offshore sand sources used in the past were typically in the range of $22.00 per cubic yard, inclusive of all project costs. The only domestic source currently available is sand delivered by truck from inland quarries at various locations throughout the state. DERM has implemented a number of small projects over the past several years using these sources to address localized erosion along the shoreline. The unit cost for these projects, inclusive of sand and all equipment needed for beach nourishment has ranged from $38.00 to almost $50.00 per cubic yard. In addition, these sources would not be suitable for large nourishment projects due to the traffic congestion and infrastructure damage that would be associated with the large numbers of trucks needed to perform such a project.

Costs associated with the use of non-domestic sources are also uncertain and will depend on a number of variables such as distance from Miami-Dade County, fees or mining charges to the country supplying the sand and transport methodologies. In a recent report, the Corps estimated the unit cost of sand obtained from the Bahamas and delivered to Miami-Dade County at $46.00 per cubic yard. Informal price quotes of $38.00 per cubic yard were obtained from a potential supplier in the Dominican Republic. Based on these actual costs using domestic inland sand and rough estimates for foreign sources, it appears that unit costs for future nourishment of the Miami-Dade projects will roughly double from the historical costs using available offshore sand sources. With large nourishment projects typically in the range of approximately 1,000,000 cubic yards, these increased costs are significant.

The cost of these projects, regardless of the sand source, will continue to be shared with Federal and State partners under the funding formulas currently in place: 50% Federal and 25% State and local respectively. Due to the anticipated doubling of the cost of nourishing our beaches in the future, and the additional financial burden to the County in providing the local cost share, a County/Municipal beach management working group was convened last year to identify and address

issues associated with the future management of our beaches. The working group consists of representatives of the Miami-Dade County Manager's Office, DERM, Miami-Dade County Parks and Recreation and administrators or other representatives from Miami Beach, Surfside, Bal Harbour, and Sunny Isles Beach. Given the projected cost increases, the group has focused on examining a new model to include Municipal participation in order to share the local cost of future beach nourishment projects. A report on the activities of the working group was distributed to the Mayor, the Board and the working group participants (copy attached) in June 2007. Future status reports on the beach management working group issues will be provided to the Board on a periodic basis.

Assistant County Manager

Memorandum

MIAMI-DADE COUNTY

Date: June 12, 2007

To: Honorable Carlos Alvarez, Mayor
Honorable Chairman Bruno A. Barreiro and Members,
Board of County Commissioners

From: George M. Burgess
County Manager

Subject: Status Report on County / Municipal Beach Management Working Group

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This is to provide information regarding issues being considered by a recently established County/ Coastal Municipality working group to address the future funding and operation of Miami-Dade's beach areas. Since the mid-1970's, Miami-Dade County has assumed full responsibility for funding and implementing beach erosion control, and maintenance, through its Department of Environmental Resources Management (DERM), and Park and Recreation Department, respectively. While this management structure has been largely successful in maintaining the County's beaches, a number of complex and interrelated financial and management challenges currently exist which dictate that a more comprehensive and collaborative program will be required. This report is preliminary in that the working group, comprised of representatives of the City of Sunny Isles, the Village of Bal Harbour, the Town of Surfside, the City of Miami Beach and Miami-Dade County, has not yet developed specific recommendations.

The County currently manages thirteen miles of beachfront extending from Government Cut through Sunny Isles Beach. These areas are part of a federally authorized shore protection project administered by the Army Corps of Engineers, with Miami-Dade County serving as local project sponsor. In this capacity, the County is responsible for assisting the Corps in project implementation at the local level, and obtaining and coordinating non-Federal project funding. The initial phase of this project (Government Cut through Haulover Park) was constructed from 1975 through 1980, with the Sunny Isles segment completed in 1988. As these areas were completed, the County's Park and Recreation department assumed maintenance responsibility for trash collection, beach grading, and numerous other tasks.

Since the completion of the initial beach restoration, a number of smaller beach renourishment projects have been conducted on eroded sections of the project to maintain the design beach width and the associated storm protection and recreational benefits. Historically, these projects utilized sand sources located in areas offshore of Miami-Dade County to provide the needed beach fill. These areas provided a convenient and cost-effective sand source, however these sources are not renewable and are effectively depleted after one use. While a number of these sand sources were identified in the original project design, the large number of projects completed in Miami-Dade County, together with increasingly restrictive environmental constraints, have resulted in the depletion of all but one small sand borrow site, which is being held in reserve if needed on an emergency basis after a major storm.

Recognizing this pending sand shortage for the Miami-Dade project, the Corps and the County initiated efforts in the mid-1990's to identify a sand source for future nourishment of the project. Initially, efforts focused on the possible use of Bahamian or other Caribbean sand sources, however, language inserted into a Federal bill to protect the United States dredging industry prohibits the use of non-domestic sand sources unless it can be demonstrated that no viable domestic sources exist. Since that time, the Corps has systematically examined numerous potential domestic sand sources. A solicitation in 2003 for sand from inland quarries proved to be too costly.
More recently, efforts to secure sand from areas offshore of Martin, St. Lucie, and Palm Beach

counties met with strong opposition due to the fact that these areas also have active beach nourishment programs which require sand for future renourishment. As a result of these efforts, the Florida Corps has recently completed a report concluding that no viable domestic sand sources are available for the future nourishment of the Miami-Dade project. This report, which will be forwarded to the Corps regional and national headquarters for review, requests approval to consider non-domestic sources.

While there is a high probability of identifying a viable sand source if consideration of both domestic and non-domestic sand sources is allowed, an unavoidable consequence will be dramatically increased project costs. The cost for offshore sand sources typically ranged from $17 to $21 per cubic yard. Preliminary, current estimates for Bahamian and other Caribbean sand sources range from $38 to $46 per cubic yard, with prices varying with distance from Miami-Dade and construction method. Thus, in rough terms, we can anticipate that project costs will approximately double. With a typical renourishment project currently costing in the range of $20 million, this represents a significant and potentially problematic increased cost to Miami-Dade County. In addition to these increasing costs, Federal and State appropriations, which account for seventy-five percent of the total cost of these projects, are less certain given the stringent Federal and State budget constraints.

Because of these anticipated cost increases, and the need to enhance maintenance and other program elements, a County/coastal municipality working group has been established to allow for a more comprehensive effort in meeting these future beach management challenges. As an initial step, DERM prepared a Beach Erosion Control Master Plan (copy attached) to summarize the history and management approach for the project, and to frame some of these issues in a concise manner. This report was distributed to the City Managers of Miami Beach, Surfside, Bal Harbour, and Sunny Isles Beach in November 2006 for their review and comment. The initial meeting of the working group took place in January 2007, with the objective of discussing the Beach Master Plan, and conceptually discussing the establishment of a new collaborative model, including the County and the coastal municipalities, for developing policies, managing and funding Miami-Dade's beach needs.

The second meeting of the working group addressed key issues and developed specific action items. A broad range of issues were discussed including supplemental or dedicated funding for beach management, the scope of the proposed comprehensive management program for beaches, governance and management structure, and future action items. The following items were identified as priority near-term items for the working group:

1. Sand Sources: At the present time, despite the existence of several eroded sections of beach, large-scale beach nourishment cannot proceed due to a lack of available, economically viable, sand sources. Miami-Dade County is currently working through its Congressional delegation to expedite the review and approval of the Army Corps of Engineers report requesting authorization to consider the use of non-domestic sand sources. The support of the individual coastal municipalities via resolutions or letters to Congress and the Corps will assist this effort.

2. Program Funding: This issue will be a major focus of the working group. The expected increases in renourishment costs, enhancements to beach maintenance, and possible additional new elements to the beach management program will exceed the ability of the County to exclusively fund the programs using existing revenues. The working group discussed, and will be investigating in more detail, a variety of potential funding mechanisms. Unlike many coastal cities and counties, Miami-Dade does not utilize its Tourist and Convention Development Tax (TDT) to fund beach management. The working

group will evaluate the use of TDT revenues, or legislative changes to provide new TDT monies to fund the beach management program, as well as what TDT increment would be required to fully fund the program. Other funding mechanisms, such as a countywide or other similar geographic area maintenance taxing district were also considered and will be investigated in more detail. The group discussed that while the coastal municipalities will obtain the greatest benefit from the improved beach management program, the beaches still represent a significant economic, natural, and recreational resource for the entire county, and any funding mechanism developed should include a countywide element. It was also discussed that any new funding mechanism should not supplant the current levels of county funding. In the absence of a countywide assessment mechanism to provide funds, municipality-specific mechanisms, or allocations from existing revenues could be considered to supplement County funds.

3. Governance Structure: Given the proposed direct or indirect financial participation of the coastal municipalities, it is anticipated that a new governance structure to administer the beach management program will be required. The formal establishment of an oversight process consisting of County, municipal, and other parties as determined appropriate, would be used to manage program funding, and set priorities for project construction, maintenance, and enhancements. The proposed structure of the management board has not been determined and will be provided in a subsequent status report.

4. Maintenance and Beach Cleaning: Enhanced beach maintenance is an integral part of the proposed beach management structure. Other than the physical presence of the beach itself, tourists and residents consistently rank beach cleanliness as a top factor in the quality of a beach experience. With enhanced funding, greater efficiencies can be achieved through better equipment and allocation of resources across the beachfront. In addition, the inclusion of the coastal municipalities in the decision making process will allow improved coordination on issues such as event permitting and concession locations on the beach which on occasion hinder beach cleaning efforts.

5. Technology: The program would allow for the more rapid evaluation and implementation of technologies to improve beach erosion control and maintenance. Given the projected increases in the cost of sand for beach renourishment, the most prudent management strategy is conserving existing beach sand as much as possible. The County has already investigated and in some case implemented structures such as submerged and surface breakwaters in strategic locations to slow erosion rates, thereby decreasing the need for future renourishment projects. Another technological solution in development is relocating beach sand in areas where the width of the beach exceeds a margin of safety with a pipeline, or other method, to erosional areas. This conservation of sand resources within the project will assist in maintaining project dimensions without relying on more costly external sources.

6. Potential Enhancements to the Beach Experience: The working group discussed the possibility of adding additional elements to the beach management program to enhance access and recreational use of the beaches. Such improvements might include additional beach access and parking, aesthetic and functional improvements at street ends adjacent to the beaches, dune vegetation and beachwalk improvements, and construction or enhancement of fishing piers as tourist attractions. In fact, as the working group develops its recommendations, funding for implementation of these enhancements may become an

element of this new approach. These additional project elements would also improve the support for the proposed program from a broader population base, which could be critical if voter approval of the selected funding mechanism is required.

7. Land use decisions and building design approvals should be better coordinated with the beach erosion goals of coastal communities. For example, a requirement of receiving erosion funds could be that setbacks are increased. Another option could be an impact fee to supplement funds available for future renourishment projects.

As indicated previously, this memo is intended to brief the Mayor and the Board on the conceptual parameters and need for a comprehensive beach management and funding program. The working group will provide regular status reports to you through my office as specific recommendations are developed.

Attachment

cc: Harvey Ruvin, Clerk of the Courts
Denis Morales, Chief of Staff, Mayor's Office
Roger M. Carlton, Assistant County Manager
Jack Kardys, Assistant Director for Operations, Miami-Dade County Park and Recreation
Jorge M. Gonzalez, Manager, City of Miami Beach
Fred Beckmann, Public Works Director, City of Miami Beach
Fernando Vazquez, City Engineer, City of Miami Beach,
W.D. Higgenbotham, Manager, Town of Surfside
Alfred Treppeda, Manager, Village of Bal Harbour
John Szerlag, Manager, City of Sunny Isles Beach
Susan Simpson, Cultural Affairs Director, City of Sunny Isles Beach